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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Robert Fischer

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EXAMINER

KUBELIK, ANNE R

ART UNIT

PAPER NUMBER

1638

DATE MAILED: 01/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/840,743

Applicant(s)

FISCHER ET AL.

Examiner

Anne R. Kubelik

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 29 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 34-40 and 47-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34, 35, 38-40, 47, 51 and 52 is/are rejected.
- 7) ☒ Claim(s) 36, 37 and 48-50 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 34-40 and 47-52 are pending.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. The objection to claims 40-45 under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim is withdrawn in light of Applicant amendment to or cancellation of the claims.
4. The rejection of claims 34-46 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention is withdrawn in light of Applicant's amendment of the claims.

Claim Rejections - 35 USC § 112

5. Claims 34-35, 38-40, 47 and 51-52 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of using an expression cassettes encoding SEQ ID NO:2 to produce late-flowering plants or expression cassettes comprising SEQ ID NO:1 or 5 to modulate development, does not reasonably provide enablement for methods of using a multitude of expression cassettes encoding DMT proteins with 80% identity to SEQ ID NO:2 or comprising 30 nucleotides of any nucleic acid encoding SEQ ID NO:2 to modify development in a plant. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. The rejection is modified from the rejection set forth

in the Office action mailed 20 April 2004, as applied to claims 34-46. Applicant's arguments filed 29 October 2004 have been fully considered but they are not persuasive.

Applicant urges that in dmt/dmt plants the phenotypes in claim 34 are observed, citing Choi et al and Leyser et al (response pg 8-9).

This is not found persuasive. dmt/dmt plants are equivalent to plants transformed with an expression cassette of SEQ ID NO:1 or 5, not expression cassettes encoding DMT proteins with 80% identity to SEQ ID NO:2 or comprising 30 nucleotides of any nucleic acid encoding SEQ ID NO:2.

Applicant urges that inhibition of DMT expression by transformation with expression inhibiting nucleic acids of 30 contiguous nucleotides of SEQ ID NO:2 is enabled, and that RNAi based suppression of endogenous gene expression was shown in Chuang et al and Thomas et al (response pg 9).

This is not found persuasive. Chuang et al does not teach use of 30 nucleotide fragments; the smallest successful fragment in Chaung et al was 288 nucleotides long (pg 4985, right column, paragraph 2). Thomas et al teaches that short sequences must have complete homology with the target (paragraph spanning pg 422-423) and that even 51-52 nucleotide long fragments could not silence an endogenous gene (pg 423, right column, paragraph 2). Thus, Chuang et al and Thomas et al do not provide support for Applicant's assertions.

Applicant urges that with respect to the function of DMT, they submit Choi et al and Xiao et al, who show that the proposed glycosylase domain of DMT has a large number of conserved amino acids with known DNA glycosylases; one of skill in the art could use the

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sequence conservation with glycosylases to introduce changes into SEQ ID NO:2 (response pg 9-10).

This is not found persuasive. Choi et al and Xiao et al both propose several possible functions of DMT (Choi et al, pg 8, right column, paragraph 4; Xiao et al, paragraph spanning pg 898-899), but do not know what that function actually is. Furthermore, Choi et al teaches that DMT has much dissimilarity with other Arabidopsis glycosylases (pg 8, right column, paragraph 3), suggesting that homology to glycosylases is not sufficient for making proteins with 80% identity to SEQ ID NO:2. Lastly both Choi et al and Xiao et al were published after the filing of the instant application and cannot be related upon for enablement.

The specification does not teach the function of DMT. The specification only states that SEQ ID NO:2 is related to endonuclease III, based on homology to a protein from *Deinococcus radiodurans* (pg 14, lines 18-20, and pg 40, lines 22-29, and pg 42, lines 4-24) and speculates, based on putative presence of a protein motif, that the protein encoded by the instant nucleic acid is an endonuclease III or a glycosylase (pg 42, lines 4-24), particularly a 5-methylcytosine glycosylase (pg 44, lines 1-24). Choi et al teaches that DMT is not a 5-methylcytosine glycosylase (pg 8, right column, paragraph 4).

Applicant urges that the exact scope of sequence identity was already issued in the parent application, now US 6,476,296 (response pg 10).

This is not found persuasive. Each case is examined independently. Furthermore, the scope of US 6,476,296 did not include use of 30 nucleotides of any nucleic acid encoding SEQ ID NO:2.

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6. Claims 34-35, 38-40, 47 and 51-52 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The rejection is repeated for the reasons of record as set forth in the Office action mailed 20 April 2004, as applied to claims 34-46. Applicant's arguments filed 29 October 2004 have been fully considered but they are not persuasive.

Applicant urges that the specification teaches that nucleic acids as small as 30 nucleotides may be used in the sense or antisense orientation; one of skill in the art could use these teachings to identify sequences within the scope of the claims to inhibit gene expression (response pg 11).

This is not found persuasive because the specification does not describe the structural features that distinguish 30 nucleotide fragments that function as sense or antisense expression inhibitors from 30 nucleotide fragments that do not function as sense or antisense expression inhibitors.

Applicant urges that the specification "teaches that DMT affects methylation whose structural basis is related to homology to an endonuclease [sic]" and the protein comprises a leucine zipper and nuclear localization signal sequence; thus sufficient structural function information is provided (response pg 11).

This is not found persuasive. Words appear to be missing from applicant's argument. However, similarity to endonucleases is not specific, given that there are a vast number of different kinds of endonucleases. Leucine zippers and nuclear localization signal sequences are

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common to a vast number of proteins of widely divergent functions, and are not sufficient to describe the claimed nucleic acids.

Double Patenting

7. Claims 47-52 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 10-38 of U.S. Patent No. 6,476,296. The rejection is repeated for the reasons of record as set forth in the Office action mailed 20 April 2004, as applied to claims 1-3, 6-8, 13, 15-21, 24-26 and 30-33. Applicant's arguments filed 29 October 2004 have been fully considered but they are not persuasive.

Applicant urges that they will consider submitting a terminal disclaimer when given notice of that the claims are otherwise allowable (response pg 12).

This is acknowledged.

8. Claims 36-37 and 48-50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, whose telephone number is (571) 272-0801. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached at (571) 272-0804. The central fax number for official correspondence is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

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Anne R. Kubelik, Ph.D.
January 3, 2005



ANNE KUBELIK
PATENT EXAMINER